

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Hikaru OKUBO, Nobuki TANAKA and
Itaru WATANABE

Serial No.: 10/593,137

Filed: March 16, 2005

For: RESIN COMPOSITION AND SEMICONDUCTOR DEVICE PRODUCED
BY USING THE SAME

DECLARATION UNDER 37 CFR 1.132

Honorable Commissioner of Patents and Trademarks,
P. O. Box 1450, Alexandria, VA 22313-1450

Sirs:

I, Hikaru OKUBO, a Japanese citizen, residing at c/o SUMITOMO BAKELITE Co., Ltd. 5-8 Higashishinagawa 2-chome, Shinagawa-ku, Tokyo, 140-0002 Japan, hereby declare and state that I graduated from Kobe University, Graduate School of Engineering, Department of Industrial Chemistry in 1988, and I also declare that I have been employed by SUMITOMO BAKELITE Co., Ltd. (Assignee of the present application) since 1988, and I now engage in Electronic Device Materials Research Laboratory I.

I declare that I have read all of the documents concerning the above-entitled patent application and am familiar with the contents of the present invention in this application.

I further declare that the following experiments were conducted by myself and that the results of the experiments are all true and correct to the best of my own knowledge.

I, Nobuki TANAKA, a Japanese citizen, residing at c/o SUMITOMO BAKELITE Co., Ltd. 5-8 Higashishinagawa 2-chome, Shinagawa-ku, Tokyo, 140-0002 Japan, hereby declare and state that I graduated from Tokyo University of Science, Department of Pure and Applied Chemistry, Faculty of Science and Technology in 1997, and I also declare that I have been employed by SUMITOMO BAKELITE Co., Ltd. (Assignee of the present application) since 1999, and I now engage in L & Z Business Division Research Department.

I declare that I have read all of the documents concerning the

above-entitled patent application and am familiar with the contents of the present invention in this application.

I further declare that the following experiments were conducted by myself and that the results of the experiments are all true and correct to the best of my own knowledge.

[Experiment]

In order to more clearly demonstrate the advantageous effects shown in Table 5 of the specification of the present invention, we conducted a review of the experimental data obtained in the past. As a result of the review, we submit herewith the data of an additional Comparative Example E', which will be described below. This additional Comparative Example E' is identical with Comparative Example 1 that was disclosed in one of the priority documents of the present invention (see paragraph [0032] in Japanese Patent Application No. 2004-377430).

Comparative Example 1 in Table 5 of the specification of the present invention is identical with Comparative Example 2 that was disclosed in the above priority document of the present invention.

The additional Comparative Example E' was conducted in the same manner as in the Experimental example series E disclosed in the specification of the present invention. That is, the same materials as those in the Experimental example series E were used to prepare resin compositions of compositions shown in the following table (not containing the compound 2 at all), and these resin compositions were evaluated by the same method as in Experimental example series E. The experimental results of the additional Comparative Example E' will be shown in the following table, together with the results of Examples E1, E2, E3 and Comparative Example E1 of the present invention.

It has been proved from the experimental results of the additional Comparative Example E' that the resin composition containing the compound (B) but not containing the allyl ester compound (G) has large warpage and insufficient low stress property.

Results of Additional Experiment

			Example E1	Example E2	Example E3	Comparative Example E1	Additional Comparative Example E'
Silver powder			80.00	80.00	80.00	80.00	80.00
Compound 1 (Compound (B))			14.56	11.65	8.74	-	19.42
Compound 2 (Allyl ester compound (G))			4.85	7.77	10.68	19.42	-
Initiator			0.39	0.39	0.39	0.39	0.39
Methacryl silane			0.19	0.19	0.19	0.19	0.19
Adhesion strength 1	After curing	N/chipp	55	55	50	20	60
Adhesion strength 2	After curing	N/chipp	60	62	60	18	65
Warpage		μm	<20	<20	<20	<20	32
Reflow resistance	Delaminated area	%	<10	<10	<10	100	100
Comprehensive evaluation			○	○	○	×	×

I further declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Dated this 22nd day of December, 2009


Hikaru OKUBO

Dated this 22nd day of December, 2009

Nobuki Tanaka
Nobuki TANAKA